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The first carload of structural steel for the stationary part of the telescope building is expected within a few days. We hope to be able to erect on Mount Wilson during the coming summer this portion of the building, which will include the side walls and the rails upon which the dome will rotate. To facilitate the transportation of this material, as well as of the very large and heavy sections of the telescope mounting at a later date, considerable work has been done on the mountain road during the winter. Although this work has been much handicapped by remarkably heavy rainstorms, about five miles of the road has been widened by an average amount of four feet, the minimum width of the road-bed for this portion now being twelve feet. At the sharper turns deep excavations have been made to obviate the necessity for "backing" the motor trucks used in transportation. We expect to complete the widening of the remaining four miles of the road next winter.

W. S. ADAMS.

D. O. MILLS EXPEDITION.

Mr. ARTHUR A. SCOTT, Instructor in Mathematics in the Instituto Ingles, Santiago, Chile, has been appointed Assistant in the D. O. Mills Observatory on Cerro San Cristobal, Santiago.

W. W. CAMPBELL.

THE SPECTRUM OF η CARINÆ.

Located on the edge of the perforation in the great "Keyhole Nebula" are a number of faint stars, among which is the well-known variable η *Carinæ,* or η *Argus,* at present invisible to the unaided eye and only distinguished from its neighbors by its slightly greater brightness and deep red color. It has, however, not always been such an inconspicuous object. Of the fourth magnitude in 1677, when first observed by HALLEY at St. Helena, it appears to have risen to the second some eight years later. At the beginning of the last century it was again a star of the fourth magnitude. Then followed a period of violent changes in light. A maximum was attained in 1843, at which time it was only slightly inferior in brightness to *Sirius.* Slowly it declined to the first magnitude in 1856 and then rapidly descended until it became invisible to the naked eye in 1868.

A stationary minimum of about seven and a half was reached in 1885, and there it has since remained, with occasional fluctuations up or down of a few tenths of a magnitude. All attempts to deduce a period for the variation in light of η *Carinæ* have failed, and it seems probable that this star belongs to the class of variables known as temporary stars or novæ.

The spectrum of this interesting star has been studied photographically with objective prism spectrographs at the Arequipa Station of Harvard College Observatory and at the Cape Observatory. A spectrogram with a one-prism slit-spectrograph was also secured by GILL at the Cape Observatory in 1899. In further study of its spectrum three spectrograms were obtained by the authors on March 29, 1912, and March 11 and 28, 1913, with the one-prism slit-spectrograph of the D. O. Mills Expedition, Santiago, Chile. The values of the wave-lengths of the lines determined from measures of these plates and a discussion of the results are given in *Lick Observatory Bulletin*, No. 252. From our study of the spectrum of η *Carinæ* as exhibited on our spectrograms we have drawn the following conclusions:—

1. The spectrum of η *Carinæ* on our spectrograms is essentially a bright-line spectrum.

2. A number of the bright lines have been identified with enhanced lines of iron, titanium, and chromium.

3. The enhanced iron lines are displaced toward the violet from their normal position by 0.42 A. On the assumption that this displacement is a Doppler effect, it corresponds to a velocity of approach of 28^{km} per second.

4. There is some evidence that the titanium and chromium lines show a mean displacement to the violet 0.2 A greater than that of the iron lines.

5. The iron lines are in general the stronger lines, while the lines of titanium and chromium appear only among the weaker ones.

6. Several strong lines in η *Carinæ* have not been identified with known lines.

7. Some evidence is presented that the hydrogen lines are double.

8. The lines of helium, the nebular lines, and magnesium 4481 A are not present on any of our spectrograms.

9. A comparison of the spectrum of η *Carinæ* with that of novæ in the early period of their history indicates a close connection between the two spectra. This fact and the great fluctuation in light exhibited by this star in the past lend support to the view frequently expressed, that η *Carinæ* is a nova. Further support arises from the apparent location of this star in a great nebula.

J. H. MOORE and R. F. SANFORD.

A REMARKABLE THUNDER STORM.

The thunder storm which occurred shortly after midnight of February 18th-19th gave an exhibition of fireworks and noise which the Lick Observatory community will never forget. The conditions were very dramatic. When I was first awakened, the interval between the flash and the thunder was ten seconds; then it was successively nine, eight, seven, six, five and four seconds. This meant that the storm was approaching us and that the electrical discharges were less than a mile away. Next the interval was three seconds, and I felt sure that we were in for trouble. The two following discharges were two seconds or less away, and it is probable that these were the ones which connected with the steel dome of the 36-inch refractor. A few seconds later there were two discharges which must have hit the hill on which my residence stands (Ptolemy), for the swish of the discharges through the air was heard a minute fraction of a second before the blinding flash and the deafening crash occurred, the flash and the crash being simultaneous. Having paid its compliments, the storm continued on its way, with increasing time intervals between flash and report.

The lightning struck many times within the region occupied by the observatory buildings and residences. The great dome was struck once certainly, and twice probably. A small fire was started at a harmless point in the basement of the great dome. It was found promptly and put out without effort or excitement. The electric-lighting and power plant and the telephone system were early put out of commission. Fuses were melted in all of the buildings, and many electric lamps